AMENDMENTS

1. (Original) A transmission device for a wireless communication system, comprising:

a first message generator for encoding first input data of a first bit stream to generate a first frame message having a first frame length;

a second message generator for encoding second input data of a second bit stream longer than the first bit stream to generate a second frame message having a second frame length longer than the first frame length;

a multiplexer for replacing a portion of the second frame message with the first frame message; and

a spreader for spreading an output of the multiplexer.

2. (Original) The transmission device as claimed in claim 1, wherein the first frame message and the second frame message are multiplexed when the first frame message is generated during transmission of the second frame message.

3. (Original) The transmission device as claimed in claim 1, wherein the multiplexer intermixingly outputs, in sequence, a portion of the second frame message, the replaced first frame message and a remaining portion of the second frame message.

4. (Original) The transmission device as claimed in claim 1, wherein the multiplexer intermixingly outputs, in sequence, the replaced first frame message and the second frame message from which a portion corresponding to the first frame message is deleted.

5. (Original) The transmission device as claimed in claim 3, further comprising a power controller for increasing a transmission power of the remaining portion of the second frame message, following the replaced first frame message, to be higher than that of the first frame message.

6. (Original) The transmission device as claimed in claim 1, wherein the first frame message has a frame length of 5ms and the second frame message has a frame length of 20ms.

7. (Original) The transmission device as claimed in claim 1, wherein the second frame message generator comprises:

a cyclic redundancy check (CRC) generator for generating CRC bits according to the second input data of the second frame length;

a tail bit generator for generating tail bits and adding the generated tail bits to an output of the CRC generator;

a channel encoder for encoding the tail bit-added second frame data at a predefined coding rate; and

an interleaver for interleaving the encoded frame message by the second frame length.

8. (Original) The transmission device as claimed in claim 7, wherein the interleaver uniformly distribute symbols generated by encoding one data bit over the respective durations of the whole frame.

9. (Original) The transmission device as claimed in claim 8, wherein the interleaver is designed according to a delete matrix given by

$$D_1 = \begin{bmatrix} 01110111\bullet\bullet\bullet \\ 10111011\bullet\bullet\bullet \\ 11011101\bullet\bullet\bullet \end{bmatrix}$$

10. (Original) The transmission device as claimed in claim 1, wherein the spreader comprises:

an orthogonal code spreader for spreading the frame message output from the multiplexer with an orthogonal code for a dedicated control channel; and

a pseudo-random noise (PN) spreader for spreading an output of the orthogonal code spreader with a PN sequence.

11. (Original) A data transmission method in a wireless communication system, comprising the steps of:

encoding first input data of a first bit stream to generate a first frame message having a first frame length;

encoding second input data of a second bit stream longer than said first bit stream to generate a second frame message having a second frame length longer than said first frame length;

replacing a portion of the second frame message with the first frame message; and

transmitting the first frame message in place of the replaced portion of the second frame message.

12. (Original) The data transmission method as claimed in claim 11, wherein the first frame message and the second frame message are multiplexed when the first frame message is generated during transmission of the second frame message.

13. (Original) The data transmission method as claimed in claim 11, wherein a portion of the second frame message, the first frame message and a remaining portion of the second frame message are intermixingly output in sequence, in said replacing step.

14. (Original) The data transmission method as claimed in claim 11, wherein the first frame message and the second frame message from which a portion corresponding to the first frame message is deleted, are intermixingly output in sequence, in said replacing step.

15. (Original) The data transmission method as claimed in claim 13, further comprising the step of increasing a transmission power of the remaining portion of the second frame message, following the first frame message, to be higher than that of the first frame message.

16. (Original) The data transmission method as claimed in claim 11, wherein the first frame message has a frame length of 5ms and the second frame message has a frame length of 20ms.

17. (Original) The data transmission method as claimed in claim 16, wherein a portion of the second frame message is deleted to insert the first frame message into the deleted portion for a second duration, and the remaining portion of the second frame message is output for third and

fourth durations, in said replacing step.

18. (Original) The data transmission method as claimed in claim 17, wherein a portion of the second frame message is deleted to insert the first frame message in the deleted portion for a first duration, and the remaining portion of the second frame message is output for second, third and fourth durations, in said replacing step.

19. (Original) The data transmission method as claimed in claim 17, further comprising the step of increasing the transmission power of the remaining portion of the second frame message, following the inserted first frame message.

20. (Original) The data transmission method as claimed in claim 11, wherein the second frame message generation step comprises the steps of:

generating CRC bits according to second data input of the second frame length;

generating tail bits and adding the generated tail bits to the CRC bit-added second data;

encoding the tail bit-added second frame data at a predefined coding rate; and

interleaving symbols of the encoded second frame data by the second frame length.

21. (Original) The data transmission method as claimed in claim 20, wherein symbols generated by encoding one data bit are uniformly distributed over the respective durations of the whole frame, in said interleaving step.

22. (Original) The data transmission method as claimed in claim 21, wherein the symbols are distributed according to a delete matrix given by

$$D_1 = \begin{bmatrix} 01110111\bullet\bullet\bullet \\ 10111011\bullet\bullet\bullet \\ 11011101\bullet\bullet\bullet \end{bmatrix}$$

23. (Original) The data transmission method as claimed in claim 11, wherein the transmission step comprises the steps of:

spreading the frame message with an orthogonal code; and

spreading an orthogonal spread signal with a PN sequence.

24-27. (Canceled)

28. (Original) The transmission device as claimed in claim 4, further comprising a power controller for increasing a transmission power of the remaining portion of the second frame message, following the replaced first frame message, to be higher than that of the first frame message.

29. (Original) The data transmission method as claimed in claim 14, further comprising the step of increasing a transmission power of the remaining portion of the second frame message, following the first frame message, to be higher than that of the first frame message.

30. (Original) The data transmission method as claimed in claim 18, further comprising the step of increasing the transmission power of the remaining portion of the second frame message, following the inserted first frame message.